



Economic Adjustments

February 8, 2022

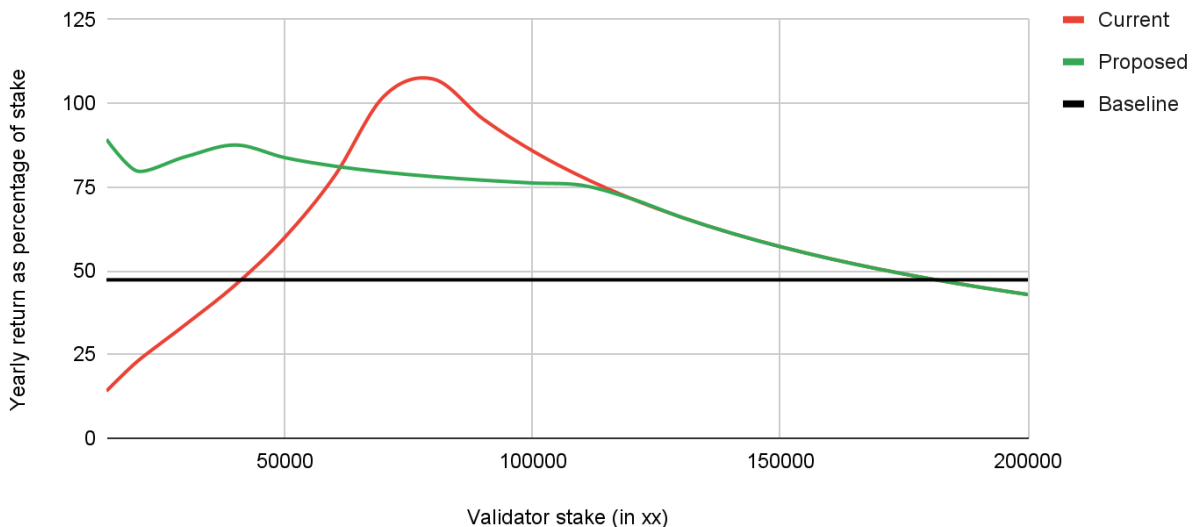
MainNet Transition Program

Introduction

The network is in an intermediary period: post MainNet launch, but pre-trading. This period is nearly over, but it has exposed oversights in the design of the MainNet Transition program. Our goal is to quickly (i.e., in the next 48 hours) push out some initial fixes that remediate the bulk of the issues and, within the next month or so, push complete fixes as the network transitions to its next phase.

In this document we will breakdown some of the problems we've identified and how we're addressing them. In summary, we will immediately implement a flat 18% commission for all MainNet Transition Program nodes and a multiplier cap of 205,000 xx coins. We are working now to allow nodes to include stake on their own node as well as nominations on other nodes when calculating the team multiplier they receive. This ensures that they are able to spread their stake across many nodes and avoid getting penalized for other coin holders staking on their node.

Validation Return vs. Stake



As can be seen from this graph, the resulting economic changes make for a more fair and equitable distribution of returns. Ensuring that across the board, all node operators are well incentivised to continue operating far into the future

Background

The xx labs team introduced the MainNet Transition Program with the intention of addressing a shortcoming in many proof of stake and even proof of work networks; namely, **the centralization of node power by whales and staking/mining pools**. In this program, the team's coins are staked (without reward) on up to 350 geographically diverse community members that have supported the network during the BetaNet period, running their nodes reliably and by engaging with the team and the rest of the community.

The team multiplier supports these node operators so that they may participate in the significant economic rewards of running a MainNet node, even if they do not have the capital to compete against larger stakers when the coin becomes tradable. This is the primary long-term goal of the Transition Program. In contrast, a shorter-term goal of the program is to ensure that the network is seeded with a high number of known reliable and performant node operators who share the xx network's vision. We believe that this goal was achieved successfully due to the overwhelming support of our node operators. However, the economics of the coin during the trading freeze has exposed flaws in our design of the Transition Program.

We have been monitoring and participating in discussions within the community about rewards for some node operators being too low to justify the extra effort and risk compared to nominating. We believe we have identified the critical issues, and this proposal includes changes to the MainNet Transition Program to ensure that all nodes are being fairly compensated for their service to the network, especially during these early stages.

We encourage all community members, especially the node operators, to review this proposal and submit feedback on [Discord](#) and our [Forum](#).

Nominated Proof of Stake

When designing the xx network blockchain, the team researched various Sybil resistance protocols and narrowed the decision down to Proof of Stake (PoS) and Nominated Proof of Stake (NPoS). In pure PoS algorithms, participation in consensus is directly proportional to staked coins, as opposed to performance. This is not equitable and is not aligned with our values, which we wanted to preserve from BetaNet as much as possible — leading to the decision to use NPoS.

We stand behind this decision, as we still believe that NPoS addresses many of the trade-offs of PoS and helps promote the decentralization of validators. However, we acknowledge that there are some shortcomings of this algorithm. The biggest example is that NPoS works best with a higher nominator stake vs. validator stake per node as this allows the Phragmen election algorithm to split staked coins more evenly amongst all validators.

While we believe some of these issues related to NPoS will be addressed organically once the coin is tradeable (more on this coming soon), some of the design choices of the MainNet

Transition Program have created an economic disadvantage for some validators that are participating in the program.

Section 1 – Commission

Problem 1 – Commission is too low

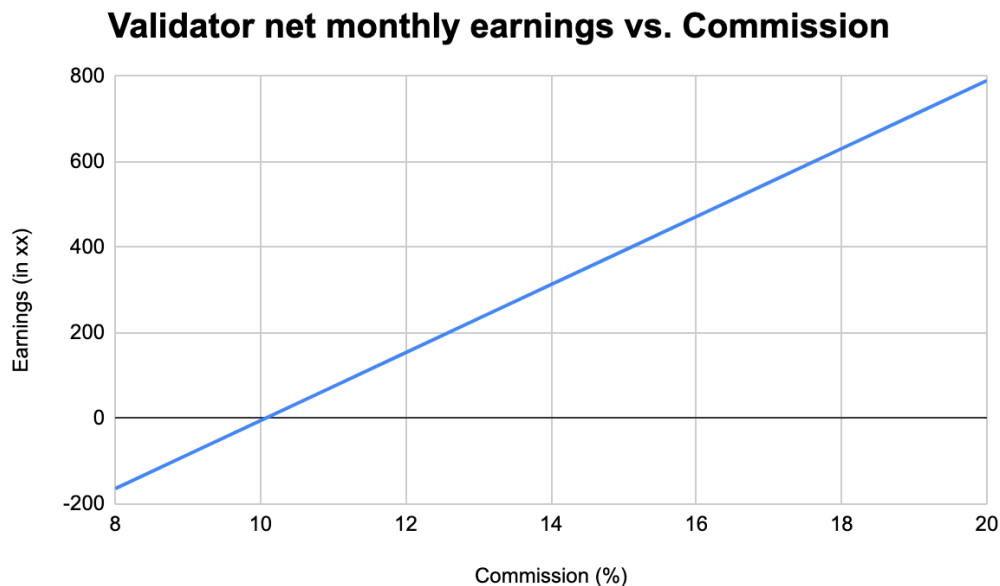
When analyzing the economics of the network, it is important to make sure that validating is always incentivized when compared to nominating. Only validators receive the commission from operating a node; however, they also incur costs that are not appropriately taken into account in the current model.

Estimating costs is particularly tricky and highly situational. That being said, a number is required to analyze the commission properly.

We selected 800xx for the graph below. **This is not a statement on the cost to run a node or the coin price; it is simply a strawman to enable us to do the analysis.** To allow you to do this analysis with your own values, we have put together the following applet: <https://xx.network/archive/commission-cost-applet/>¹

Furthermore, for the duration of this post and simplicity of analysis, we assume that the daily average validator reward is 265 xx (as seen currently in MainNet). We also assume that nominating achieves a fixed baseline average return of 47.3%.

This way, we can calculate the average net earnings (from commission only) for validators under the above assumptions for different commission percentages, which results in the following graph:



¹ Net monthly earnings from Commission = (commission% * avg_validator_reward) - costs, avg_validator_reward ≈ 265*30

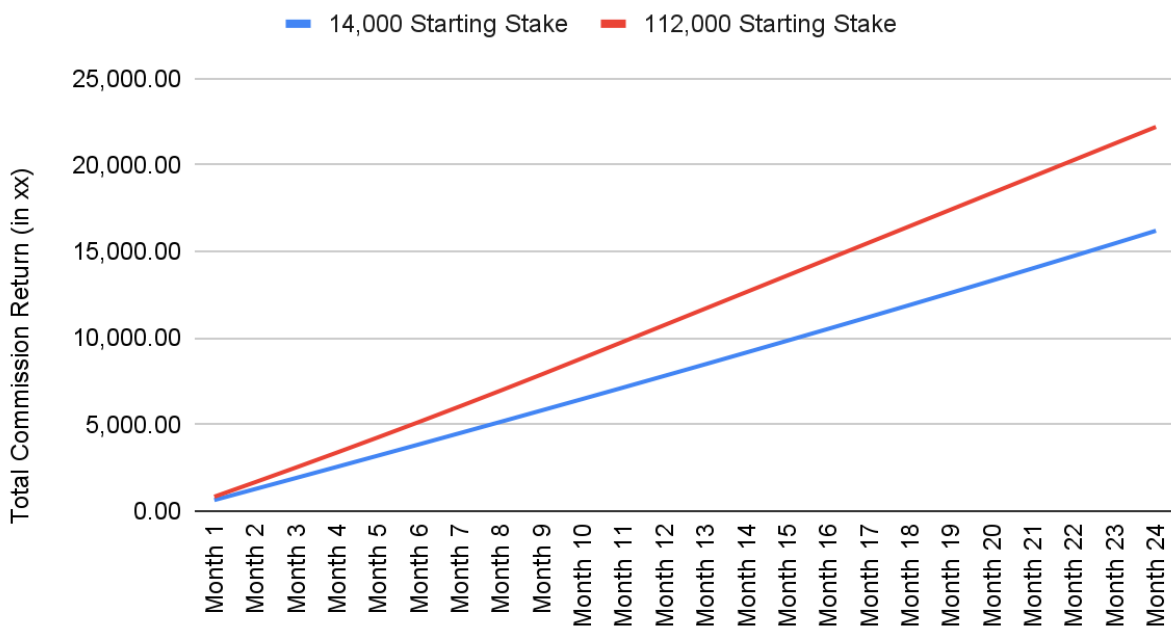
This graph reveals that under our assumptions, commissions below 10% are operating at a loss. Please use the [applet](#) to do the analysis with your own assumptions.

Problem 2 – Commission is regressive

When we analyzed the commission of the network, we noticed an oddity - even excluding nomination income, those nodes with more stake were earning faster than those with less.

This is because, as they earn, they re-stake their earnings allowing them to increase their commissions, making them earn more, allowing them to re-stake their commission, etc.

Total Commission Return By Month for Various Starting Stakes



In a perfect world, we want the economics of the system to be neutral—smaller stakeholders earn at the exact same rate as a larger one. How we achieve this is a topic for future conversation and in general, one of the most difficult questions within any economic system. While these complexities of economic policy are in general a long term discussion, the commission system is unnecessarily regressive.

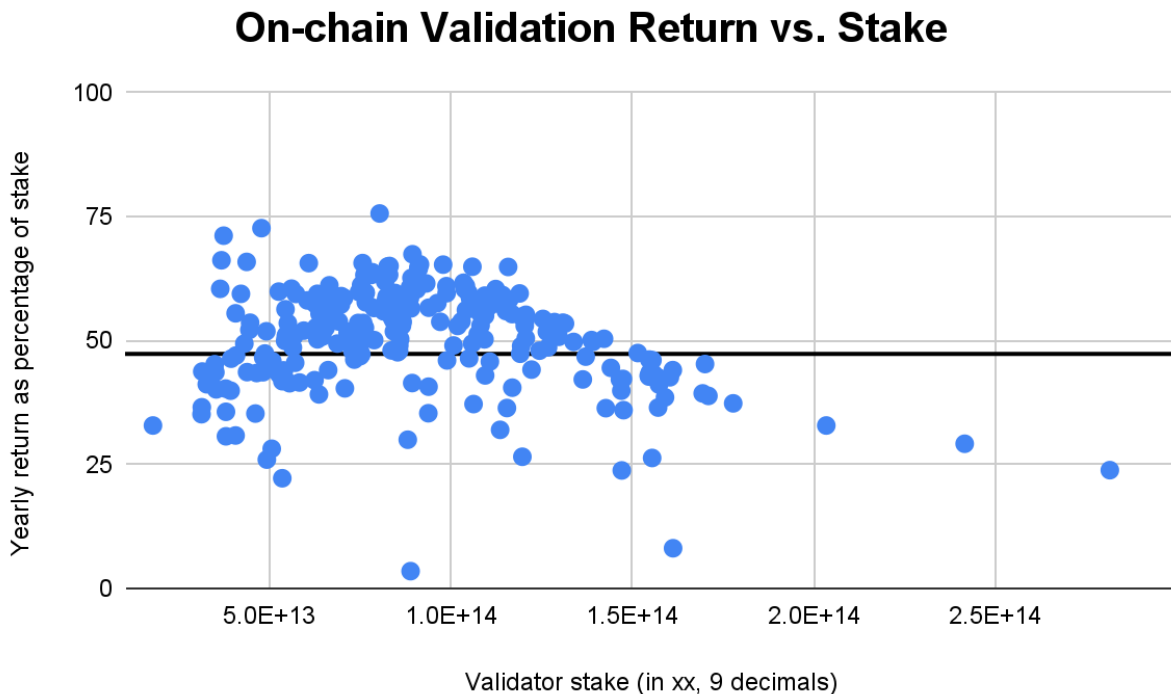
Solution

To solve these problems, the team proposes moving to a flat maximum commission of 18%. We expect this number will need further adjustment as the network grows and matures.

Section 2 – The Multiplier and Phragmen

The network and per-node returns can be analyzed far more holistically than just from the perspective of commission because when doing so, node operators earn from their staked coins as well as commission.

When looking at real returns on the network², we saw a curious thing:



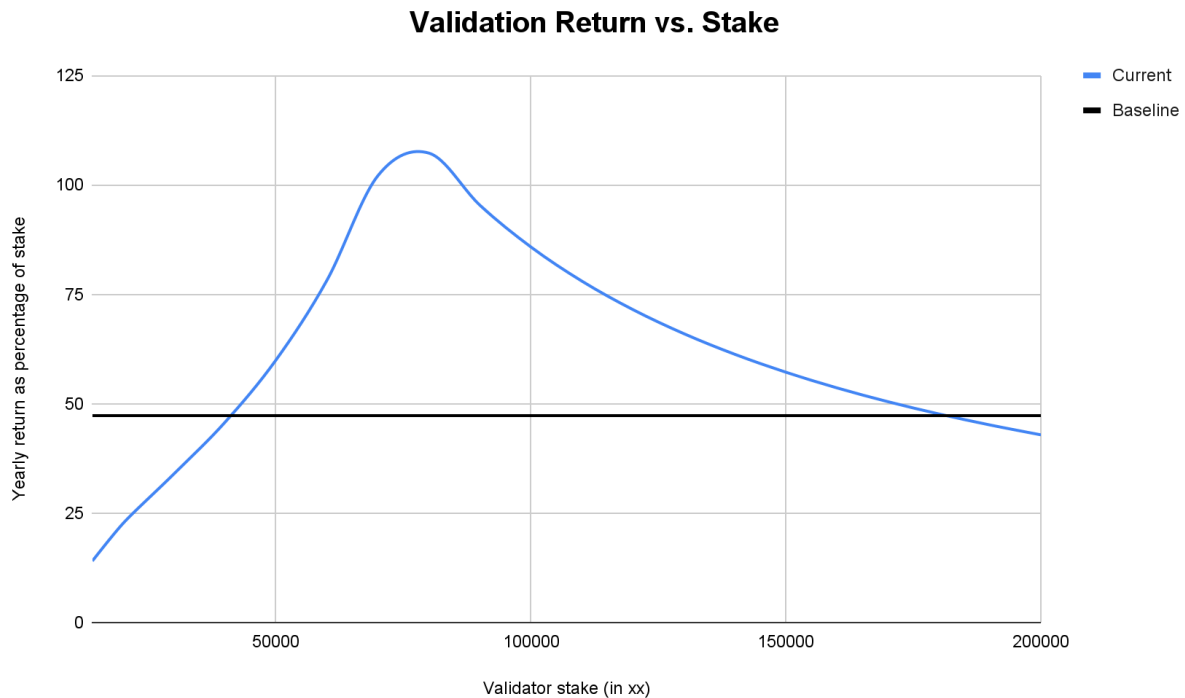
When taking into account strawman approximations of costs of running a node, the same way we did in section 1, it seems that many node operators are making less than they would by nominating (black line in the graph shows the average return), as reported by many on our Discord and other communities.

Problem 3 – the Multiplier Impacts Phragmen

To better understand this issue, we began modeling how we expected Phragmen to operate. In these calculations, we are always assuming the case where enough nomination stake is added to each validator up to the average election stake. The average election stake is determined from current network conditions by adding the total stake without foundation coins (these are all staked in 9 team nodes, which are very over-staked, and so would shift the average to be much higher) to the total of all multipliers and dividing by the current numbers of non-team run nodes (351). This value is ~408k right now.

² Includes only settled and properly configured nodes in the MainNet Transition Program

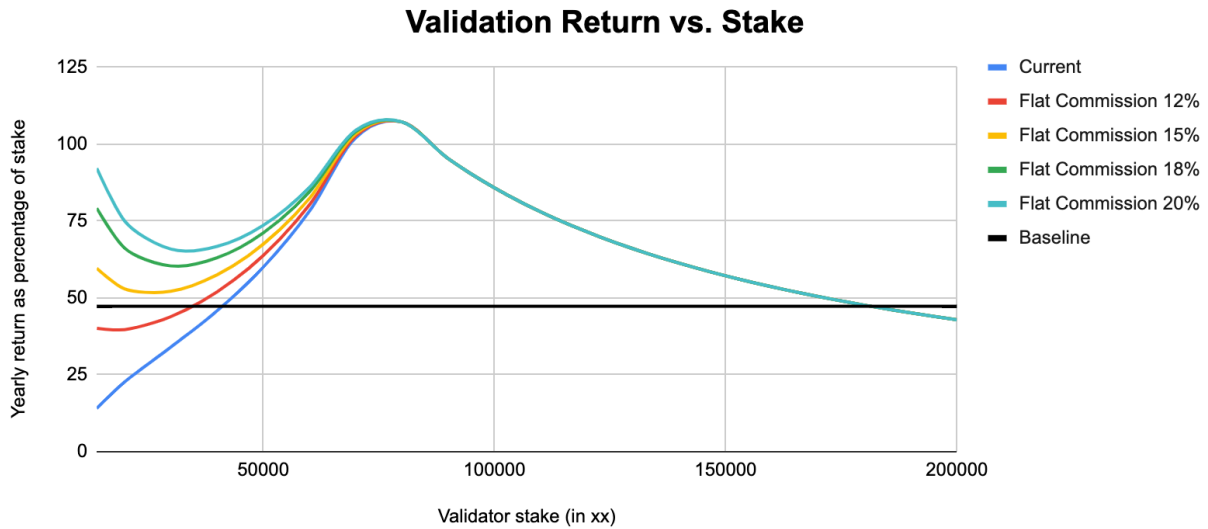
The results are shown in the following graph, which can be seen as a worst-case since any nomination stake lower than the average would result in higher returns:



Essentially, the Phragmen algorithm is balancing stake between all nodes - but it considers team multiplier to be the same as node's stake and nominations. Because team multiplier is applied only to a single node, this results in Phragmen moving all real nominations over to the lower staked nodes, causing the vast majority of earnings by nominators to come out of those lower total stake node's stakes.

Validating within the Transition Program with a stake of under ~50k is not worth the risk when compared to simply nominating. Nodes with a stake between ~60k to ~100k are being helped by the multiplier too much, which causes inequality in rewards. Furthermore, this graph still includes the commission curve from the current team multiplier rules, which makes the situation even worse for low stakers.

This issue is actually significantly solved by the commission changes, due to how well the commission will be compensating nodes. With flat commission and alternate percentages, the graph looks as follows:



With just the commission change, an argument can be made that all node operators are now making acceptable returns, but there is still significant inequality.

Node operators between 10k and 60k stake are earning significantly lower returns than those at 75k. Furthermore, there is a significant drop off as a node operator goes above 75k.

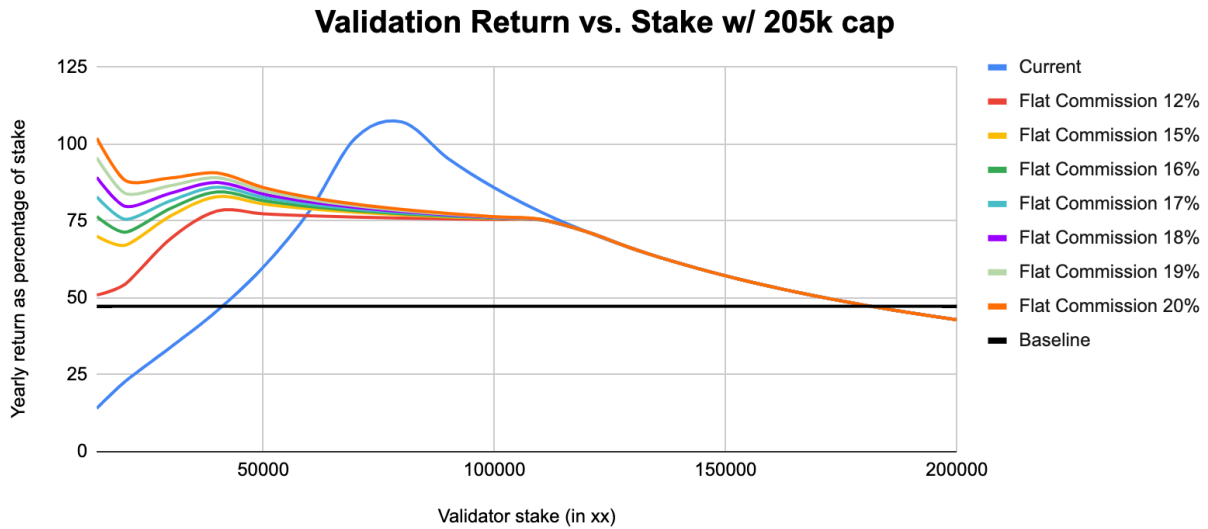
This problem is further exacerbated by the fact that most nodes in the Transition Program have stakes that are larger than 70k. The current sum of all multipliers is close to 90M, which is pushing the average election stake to values that are way too large, and create the observed inequalities.

This issue is the source of many (but not all) problems, which resulted in node operators kicking nominators very often.

Solution

When designing the team multiplier curve, the team analyzed economic situations in a longer term, where more stakeable issuance and competition exist, which results in higher necessary multiplier values in order to help all validators in the Transition Program compete against large stake holders. However, until we get there, the multiplier value must be reduced, but still in a fair manner. We show that this can be achieved by placing a cap (maximum) on the multiplier value.

With the current network performance, if we put a team multiplier cap at 205k, it adjusts the above graph as follows:

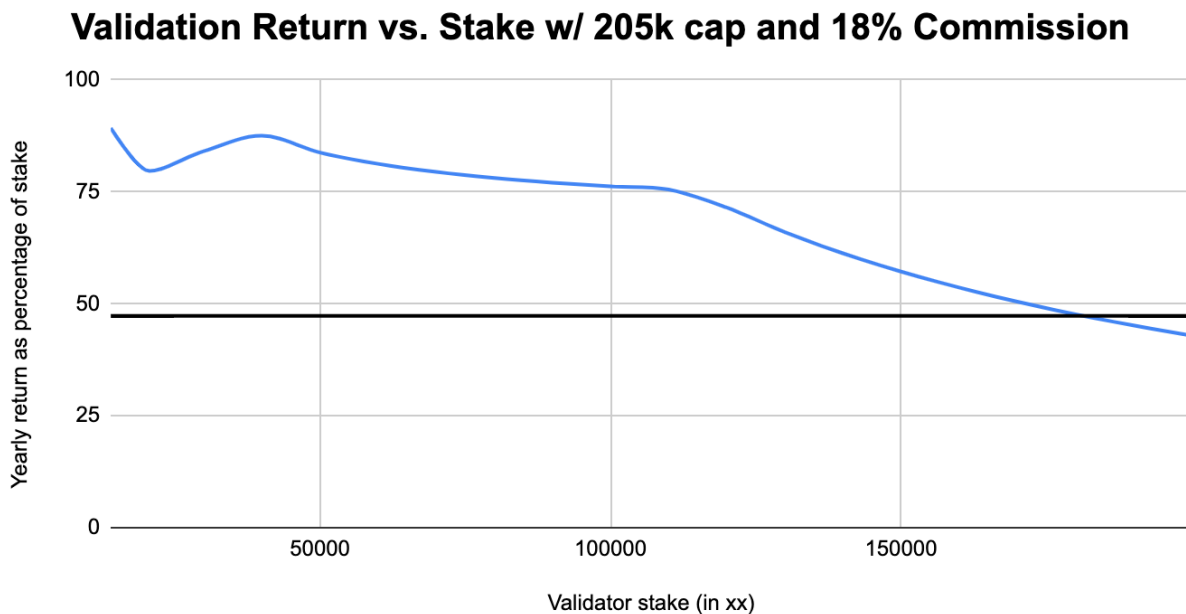


While 205k works for now, it will not work as the network grows. We have heuristically put together the following equation for how to adjust the multiplier cap as the network grows:

$$cap = (stakeableCoins \times idealStakingRatio) / numNodes - avgStakeTransitionNodes$$

As the network grows, the cap will increase, ensuring those operators with higher stakes will see the full impact of their team multiplier when it is necessary.

Problem 4 – Nodes are stuck staking on themselves



When looking at the graph, it can be seen that post ~50k xx, a Team Multiplier node's returns start decreasing, with the drop getting much sharper at ~110k. The issue is that nodes are over-staked on themselves. The MainNet Transition Program requires that node operators stake their coins on themselves. As a result, when a node exceeds the average stake of the network, a node's stake stops working for itself, as better returns can be achieved by spreading it.

This is due to a fundamental issue with the fact that Phragmen is designed to put stake where it will be most profitable, but it cannot move node stake.

This issue also has a second symptom - kicking. Because a node operator is unable to move their stake, if a large stake nominator backs their node, rewards will be reduced with no recourse other than kicking.

Solution

The solution is to allow node operators to stake on any node while retaining their team multiplier. The team will release an updated commitment tool which allows a MainNet Transition participant to commit to both a wallet for their node, as well as a wallet for nominating. A process for allowing them to transfer coins while avoiding the 28 day unbonding time will allow for a quick transition.

The best scenario for the operation of the algorithm is that node operators stake only the on-chain required minimum on their validator, receiving rewards mostly from commission and any stake-based portion that is left according to the nominated stake. With their remaining coins, node operators can nominate multiple validators, including their own. This allows Phragmen to do its job: split stake as equally as possible. For a node operator, it seems easy to jump to the conclusion that not having their full stake backing the validator directly could put it's place in the validator set at risk, however this is not true. We note that if a node operator always nominates their own validator as one of the (up to 16) nominations, if the stake is needed in the validator, Phragmen will ensure it goes there. Furthermore, it will ensure than any "leftover" stake is placed in other validators as needed, which also optimizes earnings, and helps other node operators.

Section 3 – Timeline

February 8

- This proposal is released for comment
 - All MainNet Transition Program Nodes emailed and changes advertised

February 10

- Initial fixes are put in place (Assuming positive community response to proposal)
 - Flat commission of 18%
 - Team multiplier cap is enabled (estimated to start at 205k)
 - Solves Problems 1, 2, and 3
 - Emails will be sent to all MainNet Transition Nodes telling them of the change
- MainNet Transition Rules are updated
 - Strike system rules will be finalized - Rules for the MainNet Transition program have not been enforced, the team will re-finalize the rules and post to the community, and prepare to enforce them completely
 - All MainNet Transition Nodes will receive emails about the changes

February 17

- MainNet Transition Rules will be enforced

Late February / Early March

- Nomination of other nodes
 - New commit tool will be released
 - Coins in nomination wallets will be counted towards the team multiplier.
 - Solves problem 4